

HOW DOES MINDFULNESS TRANSFORM SUFFERING? II: THE TRANSFORMATION OF *DUKKHA*

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Mindfulness transforms suffering through changes in what the mind is processing, changes in how the mind is processing it, and changes in the view of what is being processed. The 'bearing in mind' aspect of mindfulness is important in understanding these changes, and is discussed in terms of working memory. The Interacting Cognitive Subsystems perspective recognizes two kinds of meaning, one explicit and specific, the other implicit and holistic. We suggest that mindfulness is a configuration of mind in which working memory for holistic implicit meanings plays a central role. It is here that the processing and view of experience are transformed by the creation of new patterns of implicit meaning. This analysis is applied to mindfulness practice, mindfulness as a way of being, the training of instructors and the use of mindfulness with respect to different aspirations.

In the first of two linked papers (Teasdale and Chaskalson 2011), we described the Buddha's analysis of the nature and origins of *dukkha* (suffering). The Buddha also offered a programme of practice, the Noble Eightfold Path, to bring *dukkha* to an end. Mindfulness is a core component of this path to freedom and awakening. Mindfulness is also, of course, the primary focus of contemporary mindfulness-based applications (such as Mindfulness-based Stress Reduction [MBSR] and Mindfulness-based Cognitive Therapy [MBCT]). In this second paper we consider the question: How does mindfulness contribute to the transformation of *dukkha* that occurs when we practice the Noble Eightfold Path or engage with the programmes of mindfulness-based applications?

For the purpose of our discussion we will use the term 'mindfulness' to refer to the practices and processes cultivated in the Buddha's own core teaching on that subject, the *Satipaṭṭhāna Sutta*.

Origins of *dukkha*

As we saw in the first of these two linked papers, the Buddha's analysis of *dukkha*, expressed in the Second Noble Truth, identifies *taṇhā*, craving, as the

origin of *dukkha*. The Buddha also offered a more detailed analysis of suffering, known as Dependent Origination, or Dependent Co-arising. This more detailed analysis suggests that *dukkha* arises and is sustained as a result of complex, mutually reinforcing, and self-perpetuating patterns of interaction between many conditions (Thanissaro 2007). We can usefully regard those conditions as particular mental processes and mental contents. Suffering is then seen as the result of particular configurations, or patterns, of mental processes that interact in ways that keep the whole configuration going. These configurations are dynamic—suffering is actively created and re-created, moment by moment. The maintenance of such configurations depends on the re-creation of a particular set of conditions, from one moment to the next, over and over again.

This analysis suggests that we can bring about a temporary cessation of *dukkha* by changing conditions so that these patterns of processing no longer feed off themselves. To bring about a lasting end to all suffering, which is the aim of the Noble Eightfold Path, we have to change conditions so that configurations that perpetuate *dukkha* no longer even arise. Mindfulness offers us ways to change conditions in both these ways.

We can distinguish three broad routes through which mindfulness can have its effects. Although distinct, these strategies are inter-related. We will describe them briefly, and then explore selected aspects of them in greater depth.

As a way to anchor our theoretical discussion we will illustrate the points we make in relation to a concrete example: imagine that a work colleague phones at 9.30 pm in the evening, intruding into your personal time for rest and relaxation. He wants to talk about some figures you had been working on. His tone seems accusatory—hectoring. You have a rule that *you* do not contact work colleagues after 7 pm—so why does *he* keep doing it? You are angry that your privacy has been invaded. After the call, you find yourself upset and irritable, dwelling on thoughts about the call and your colleague that force their way into your mind.

Participants in mindfulness-based programmes often report a reduction in rumination and distress following such upsetting events. In the present example, they might describe noticing, with some surprise and delight, that as a result of practicing mindfulness such a ‘difficult’ phone call that previously could have upset them for hours, now only leads to disturbance and dwelling on the experience for a matter of minutes, or even seconds. We will consider some possible explanations for such transformation of suffering.

Three strategies for change

The first, and simplest, strategy for altering the conditions which sustain or create suffering is to change the *content* the mind is processing. We can do this by intentionally redirecting the focus of attention to aspects of experience less likely to support the arising and continuation of configurations that create suffering. So, in the case of the phone call, we can intentionally focus and sustain our attention on the bodily sensations as the breath moves in and out; this relatively neutral

focus will provide less ‘fuel’ for the maintenance of problematic configurations than emotion-laden thoughts related to the call.

A second approach is to leave the ‘input’ to the mind the same, but to change the configuration of processes, or ‘shape’ of the mind, through which that material is processed. Whereas the first strategy changes *what* is processed, this alternative strategy changes *how* material is processed. This might mean, for example, intentionally allowing and attending to the unpleasant feelings created by the upsetting phone call with interest and curiosity, as objects of experience, rather than being ‘lost’ *within* them in the automatic reaction of aversion.

The third strategy is to change the *view* that we have of the material being processed. In the Buddha’s analysis, the configurations that keep us stuck in suffering are rooted in our fundamental ignorance, the basic misperception in which we see the impermanent as permanent, the unreliable as reliable, what is ‘not-self’ as ‘self’, and in which we do not see clearly the nature and origins of *dukkha*, nor the way to end it. If we can see things clearly as they are, if we can let go of our tendency to identify personally with experience, then we remove a basic condition for the arising of the configurations that support *dukkha*. With the upsetting phone call, this might involve a change from the perception ‘that person has really hurt me by the way he spoke’ to the perception ‘unpleasant thoughts, feelings and body sensations are here in this moment.’

Each of these three strategies requires us to be aware; if we are to make intentional changes to what is processed, how it is processed, or the view we have of it, we need to know what is going on in the moment. The practice of mindfulness cultivates meta-awareness—our capacity to know, directly, intuitively, our experience as it arises in each moment. At this fundamental level, mindfulness makes a crucial contribution to each of the three strategies we have identified. We now look more closely at the first of those strategies.

Strategy one: Change the input (the ‘what’ of processing)

In general, what we pay attention to, whether externally or internally, is dictated, not by our conscious choice, but by relatively automatic, habitual biases to attend one way rather than another. In this situation, our attention is reactive; our minds may focus on aspects of experience that feed suffering, and we have little sense of freedom or control. For example, in the context of upsetting situations, such as the phone call, we may have learned to selectively attend to memories and thoughts related to the origins of the upset (‘what did I do wrong?’, ‘whose fault is this?’ etc.). Such selective retrieval from memory is one of the bases of ruminative thought patterns (Watkins 2008) that can perpetuate depressed or angry emotions.

We can free ourselves from the effects of these automatic, unconscious priorities for attention by conscious, intentional, allocation of attention to particular objects or classes of objects. For example, we can switch from the habitual disposition to attend to memories and thoughts related to a distressing

event and, instead, intentionally attend to relatively neutral sensory stimuli, such as the sensations of the breath, or sound. In that way, we change the content processed by the mind so that it is less likely to create further suffering.

The initial mindfulness practices taught in both mindfulness-based applications and many forms of Buddhist insight meditation ask the practitioner to maintain a focus of attention on the sensations in the body and of the movements of the breath, to recognize when the mind has wandered away from this focus, and then to release the attention and refocus it back on the body or breath. Even in a relatively brief eight-week MBSR or MBCT programme, practicing formal meditation 45 minutes a day, participants will rehearse this sequence hundreds or thousands of times.

In this way, participants have extensive practice in cultivating the skills of detecting when the mind is lost in thought and then intentionally redirecting attention to a chosen focus. Participants in MBSR and MBCT are explicitly encouraged to use these attention switching skills to release themselves from thought patterns which might create emotional suffering. Systematic studies (Allen et al. 2009) show that many patients report the development of these skills as one of the main benefits of MBCT, offering them a simple coping response that enables them to recognize and interrupt ruminative thought patterns that might otherwise lead on to depressive relapse.

It is, of course, important that these skills are taught in a way that fully acknowledges the presence of unhelpful thoughts or feelings before intentionally refocusing attention as a positively motivated act, rather than as a way to avoid or get rid of unpleasant experiences. The latter would simply reinforce the experiential avoidance which is a core feature of many of the configurations of conditions that maintain emotional distress (Hayes et al. 1996).

Learning to intentionally control attention can also have more indirect long-term effects, such as an increase in the sense of agency and self-efficacy in relation to unpleasant thoughts and emotions (Allen et al. 2009). These more persisting effects can lead to long-term reductions in suffering.

The effects of mindfulness training in reducing suffering through this first strategy of changing *what* the mind processes are not hard to understand, and could be shared by other approaches that involve training in the control of attention. On the other hand, the ways in which mindfulness has its effects through the second strategy of changing *how* the mind processes the content it selects, and through the third strategy of changing the *view* of that content are less obvious. These strategies are also more specifically characteristic of mindfulness-based approaches than of other approaches to training attention. In order to understand these routes to change, we need first to look more closely at certain aspects of the ways in which the mind and heart operate.

Working memory

Dreyfus (2011) has suggested that the concept of working memory helps us appreciate an aspect of mindfulness that has received relatively little attention in contemporary discussions; the view of mindfulness as ‘the retentive ability on the basis of which we are able to make sense of our experience.’ This aspect of mindfulness is particularly relevant to understanding the cognitive mechanisms through which mindfulness changes the way the mind processes and views experience (‘cognitive’ here, and elsewhere in this paper, refers to information processing in general, including the processing of feeling and sensations, not just to ‘thinking’).

Working memory is a limited capacity workspace within our mental architecture, in which different pieces of information can be temporarily held and processed. For example, separate pieces of information held in working memory can be integrated into wider patterns that can then shape new understanding and action. The words of this sentence, processed individually, in isolation from each other, convey very limited information. But if they are all held in working memory, and viewed together, then a wider pattern of information is available that can convey much richer information. In the same way, if the meanings of all the sentences in this paragraph are held in working memory, then the overall pattern of information offered conveys an even richer order of meaning than can be conveyed by single sentences.

Working memory and mindfulness

How is this ability of working memory to hold separate pieces of information and integrate them into wider patterns relevant to the transformation of suffering by mindfulness? A cognitive perspective (using ‘cognitive’ here in its widest sense) suggests that suffering is a response to particular patterns of information (for example, patterns that convey certain emotive meanings). This perspective suggests that we can prevent or reduce suffering by transforming the patterns of information that produce it. *Working memory provides a place where these patterns can be held and integrated with other patterns to create new patterns that do not produce suffering.* So, as a very simple example, a pattern of information related to a person walking right into us, that might ordinarily evoke an angry response, is less likely to do so if it can be integrated into a wider pattern that also includes a pattern of information reflecting the fact that the person is wearing spectacles with very thick lenses, suggesting that they may not be able to see well.

For this integration to occur, the separate pieces of information have to be present together at the same time in working memory. How can we arrange this or know that it is the case? This is where mindfulness enters the picture; psychologists have repeatedly suggested an association between working memory and conscious awareness (Baddeley 2000; Baars and Franklin 2003). This suggests that mindful awareness of an experience is a marker that related

information is being 'held' in working memory, and is available for processing. We might go further and suggest that the actual process of being mindful of an object brings related information into working memory and holds it there. In the present example, awareness of the person bumping into us and of the presence of the thick lenses tells us that patterns of information related to both these experiences are present in working memory and are available to be integrated in ways that may reduce suffering. Mindfully attending to these two aspects of experience is one way to get this information into working memory and to hold it there.

Different working memories

At this point, we need to add a further refinement that reflects both the facts of personal experience and the requirements of cognitive theory. This is that we can be conscious of the 'same' experience in different ways, depending on how we attend to it. Consider, for example, the person who bumped into us. We could be aware of them, at a purely sensory-perceptual, visual level, as simply a pattern of shapes and colours. Alternatively, at the level of 'factual' information, we could be aware of the 'fact' that a person has made physical contact with us. And, at a richer level of meaning reflecting the implications derived from this and other facts, we could be aware of an intuitive sense of them as 'a thoughtless, selfish person with no regard for anyone else's comfort or safety' (although, necessarily, expressed in words here, the conscious experience of this kind of implicit, derived meaning is not actually of verbalised thoughts, but, rather, of a felt 'sense' of the person in this way). (These three aspects are meant to be illustrative rather than exhaustive; there are further aspects of this 'same' experience that we could also be aware of.)

Given the suggested link between working memory and consciousness, the fact that we can be conscious of different aspects of experience suggests that there may also be different kinds of working memory, each related to a different aspect of conscious experience. Psychological research has in fact found that there is not just a single, unitary working memory that deals with all kinds of information, but, rather, several different working memories, each specialized for handling a particular kind of information (Baddeley 2000).

This multiplicity of working memories might seem to make working memory less attractive as an idea to help us understand mindfulness and the ways in which it transforms suffering. In fact, approached from the particular theoretical framework we will describe, awareness of this multiplicity actually assists this task by forcing us to confront the questions: (1) Which working memory holds and integrates the kind of information that is most directly linked to the creation and alleviation of suffering? (2) Is this a working memory that is particularly associated with mindfulness compared to lack of mindfulness?

Cognitive models of emotion suggest that the emotional response to an experience is related to the meaning we give the experience. Given that we can

recognize more than one type of meaning (literal, metaphorical, etc.), the crucial question is: which of these different aspects of meaning is most directly related to emotion? After considering this question at length, Teasdale (1993) concluded that implicit holistic meanings, derived intuitively from experience, are the most closely involved both in creating and in healing unhelpful emotion. So, with the person who bumped into us, the implicit derived meaning 'thoughtless selfish person with no regard for anyone else's comfort or safety' would be seen as most directly linked to our anger. This level of meaning (which we will describe more fully later) reflects implications derived from whole constellations of more specific conceptual meanings and associated patterns of sensory-perceptual information. We experience these meanings in consciousness as felt 'senses,' as, for example, in a sense that someone is trustworthy, or unreliable, a sense of confidence, or a sense of apprehension.

If elements of the information related to the implicit meaning 'thoughtless selfish person with no regard for anyone else's comfort or safety' are to be integrated with other information, such as the implicit realization 'he is visually impaired and cannot see where he is going' (derived intuitively from the presence of the thick spectacles), then all the relevant information must be held in the working memory that is specialized for dealing with implicit holistic meanings. This would allow the creation of a new pattern reflecting the implicit theme 'innocent of harmful intent' which would reduce the intensity of the irritation, or even transform it into compassion.

Following this line of reasoning, we can suggest that mindfulness, compared to lack of mindfulness, is a configuration of mind in which working memory for the kind of information that conveys implicit holistic meanings (the level of meaning which is most directly involved in the creation and transformation of suffering) plays a particularly important role. We can express these ideas more formally as hypotheses: *mindfulness is characterized by configurations of cognitive processing in which working memory for implicit, intuitive meanings plays a central role; when mindfulness transforms suffering by changing the way experience is processed or viewed, the integration of information into new patterns within this working memory plays a central role.*

We will use these hypotheses to guide our exploration of the ways in which mindfulness transforms suffering through the second and third routes: changes in how experience is processed, and how it is viewed. First, though, we must look more closely at the notion of implicit holistic meanings, an idea that is both central to the account we will explore, and, at the same time, also subtle and not necessarily easy to grasp. We will draw on the Interacting Cognitive Subsystems (ICS) framework (Barnard and Teasdale 1991; Teasdale 1993; Teasdale and Barnard 1993), in which these meanings are seen as playing a central role in emotion production. This framework has been applied previously to understanding the therapeutic effects of mindfulness (Teasdale 1999; Teasdale, Segal and Williams 1995). (ICS actually uses the concept of 'memory buffer' or 'image record'

rather than 'working memory' but, for our purposes, we can use these terms equivalently.)

Two kinds of meaning

The poem 'La Belle Dame Sans Merci' by John Keats begins with these four lines:

Oh what can ail thee, knight-at-arms,
Alone and palely loitering?
The sedge has withered from the lake,
And no birds sing.

For most people, reading these lines communicates a direct intuitive sense of melancholy and abandonment. The effect is very different from that of the factual meaning conveyed by a simple sentence: 'The man felt sad and alone.' The effect is also very different from the sum of the same sequence of literal meanings expressed in 'non-poetic' language: '*What is the matter, armed old-fashioned soldier, standing by yourself and doing nothing with a pallid expression? The reed-like plants have decomposed by the lake, and there are not any birds singing*' (Teasdale and Barnard 1993, 73).

ICS suggests that the intuitive sense of melancholy and abandonment conveyed by the poem is the subjective, conscious, correlate of the communication of an implicit holistic meaning related to those themes. That implicit meaning cannot be reduced to the kind of explicit factual, conceptual meaning that is normally conveyed by a single sentence. You can check that meaning is in fact being conveyed if, having read the poem again and 'sensed' the feeling engendered, you ask yourself the question 'would he be fun to meet at a party?' Most likely, you will know, directly, immediately, and non-conceptually, in other words, without having to 'think' about it, that the answer is an emphatic 'no.' This is another kind of knowing, one that lies at the heart of mindful processing.

ICS distinguishes between specific *Propositional meaning* and more generic *Implicational meaning*. Propositional meaning corresponds to the kind of straightforward explicit, factual, conceptual, or literal meaning conveyed by a single sentence. The associated subjective experience is of 'knowing that' something is or is not the case. By contrast, *Implicational meaning communicates a meaning that is implicit and holistic, that cannot be reduced to the meaning of a single sentence, or to the sum of the specific conceptual meanings conveyed by a sequence of sentences*. To the extent that we can communicate these kinds of meaning by language, it is by poetry, metaphor, story, and parable.

Implicational meanings capture the 'deep structure' of experience; underlying similarities that recur across a range of life situations which, although superficially different, share certain underlying common themes. These prototypical patterns include the common themes within recurring patterns of

conceptual meanings, together with the common elements of any recurring patterns of sensory information that typically occur with them. For example, Implicational meanings might capture recurring patterns of meaning (such as ‘there is no way for me to get what I want’) extracted from ‘hopeless’ situations, together with information reflecting patterns of body sensations that recur in such situations, such as the physical sense of being ‘burdened’. Reflecting these two aspects of Implicational meaning, the meaning conveyed by a poem also depends on the combination of carefully chosen patterns of conceptual meanings, together with the actual sounds of the words, their rhythms, and the visual imagery they evoke.

In contrast to the intellectual ‘knowing with the head’ or ‘knowing that’ of Propositional meanings, consciously processing Implicational meanings is associated with a more experiential quality. These meanings are ‘felt’ or ‘sensed’ and often have an embodied quality: ‘knowing with the heart,’ ‘gut-level knowing,’ and so forth. The lines of the poem we considered convey an actual sense of the *experience* of melancholy and abandonment, albeit in a muted or limited form, rather than telling us *about* melancholy and abandonment, as in a prose passage on the subject.

Two kinds of meaning and the transformation of suffering

Consistent with our earlier discussion, the ICS theoretical framework makes the very strong assertion that only holistic Implicational meanings are directly linked to emotion and suffering. By contrast, Propositional meanings affect emotion only indirectly, through their contribution to Implicational meanings. It follows that the transformation of suffering has to occur primarily in the working memory specialised for Implicational meaning. We can see mindfulness as a way to access and ‘work’ within Implicational working memory. When we mindfully contemplate experience we ‘hold’ related elements of Implicational meaning in that workspace in ways that allow them to be integrated into new patterns, or processed within a wider perspective, so that they no longer evoke suffering. We might say that mindfulness allows the poetry of moment by moment experience to rewrite itself, to gracefully change its theme from one of suffering to one of ease and peace. This is one reason why the judicious use of poetry in mindfulness-based interventions can be so effective—it is evocative of a feeling that carries deep meaning beyond the words, into the space of silence during a class session.

By contrast with Implicational working memory, where ‘work’ on elements of Implicational meaning can heal suffering, Propositional working memory figures prominently in configurations that create suffering (as well, of course, in many configurations that do not) (Teasdale 1999). This is where the mind compares its ideas of where it is with its ideas of where it thinks it should be, and, if it cannot resolve the gap, dwells on the gulf between them in ways that can fuel suffering. Segal, Williams and Teasdale (2002, 68) identified this process with a ‘discrepancy monitor’ and gave it a central role in the rumination which maintains

persistent depression. More generally, Propositional working memory derives elements of Implicational meaning reflecting themes of unsatisfactoriness, disappointment, frustration, and the like from discrepancies between concepts of needed and actual states. These Implicational meanings can then create suffering.

With this theoretical background in place, we are now in a position to consider the second and third routes through which mindfulness contributes to the transformation of suffering: changes in how experiences are processed, and changes in how experiences are viewed.

Strategy two: Change the ‘how’ of processing

Mindfulness involves a radical shift in the *way* in which we attend to experience. In this second route to the transformation of suffering, mindfulness disrupts configurations maintaining *dukkha* by changing conditions related to *how* information is processed rather than, as in the first route, conditions related to *what* information is processed. Here, the very act of bringing mindful awareness to experience, can, itself, disrupt and transform habitual unhelpful configurations of processing.

How are we to understand this? Some of the changes in processing associated with mindfulness are best understood in terms of mindfulness changing the overall configuration, or ‘shape,’ of the mind. As we have already noted, processing configurations that create and maintain *dukkha* often prioritize a verbal-conceptual level of information; the angry rumination that fuels the distress following an upsetting phone call involves streams of thinking, often actually experienced internally in verbal form: ‘How dare he say that to me! . . . He’s really upset me now . . . How can I get on with my evening when I feel like this? . . .’ Such thinking *about* experience involves the manipulation of concepts related to experience, rather than the direct experience itself, and, from an ICS perspective, reflects an overall processing configuration in which the dominant influence is Propositional working memory rather than Implicational working memory.

On the other hand, mindfulness practice cultivates a more direct, intuitive, experiential way of knowing momentary experience (Farb et al. 2007; Watkins and Teasdale 2004)—*the knowing of the experience is in the very awareness of it*. From the ICS perspective, this kind of knowing reflects an overall processing configuration in which the dominant influence is Implicational working memory rather than Propositional working memory. Mindfully responding to the distress following a phone call involves a shift from ruminatively thinking *about* the call, its effects and consequences, to an awareness of thoughts, feelings and body sensations, known directly, experientially, as aspects of experience in the moment. This shift in mode of knowing, brought about by the intentional deployment of attention in particular ways, reflects a reconfiguration of the mind so that primary influence shifts from Propositional working memory to Implicational working

memory. In that way, mindfulness can transform suffering by changing the overall 'shape' of the mind through which experience is processed so that conditions no longer support the continuing creation and recreation from moment to moment of configurations that perpetuate suffering.

Other effects of mindfulness on processing are best understood in terms of changes *within* Implicational working memory. As we noted in the first of these two linked papers (Teasdale and Chaskalson 2011), the Second Noble Truth identifies craving and aversion as crucial conditions for the arising of *dukkha*. Both aversion and craving are rooted in a basic underlying motivation of fear and avoidance. With aversion we need to get rid of unpleasant experiences or states of being, and with craving and clinging the compulsive need to have and hold the object of desire reflects a fear that we may fail to attain it, or that, having attained it, we will lose it. On the other hand, mindfulness cultivates mental processes rooted in approach motivation, and has been shown to shift measures of underlying brain activity from patterns characteristic of avoidance to patterns more characteristic of approach (Davidson et al. 2003).

We can understand these effects of mindfulness in terms of changes within Implicational working memory. It is here that elements of Implicational meaning reflecting the approach themes of curiosity, interest, and engagement, inherent in mindfulness, can be processed alongside patterns of meaning embodying themes of avoidance, aversion and resistance in ways that will transform their capacity to create suffering. In the case of the upsetting telephone call, for example, the very act of deliberately bringing a kindly, curious, interested, mindful awareness to the experience of distress introduces elements of meaning related to such approach themes into Implicational working memory. There, in ways that we will look at more closely below, they can counterbalance the effects of the elements of meaning related to avoidance themes which have been created by the angry ruminative thinking that is perpetuating suffering.

Craving and aversion also reflect a need for experience to be different from how it actually is. Mindfulness intentionally embodies a willingness to allow things to be just as they are. With the upset following the phone call, a mindful response brings a deliberate stance of letting the experiences of the moment, the unpleasant thoughts, feelings and body sensations, be just as they are as we hold them in awareness and come to know them more closely. As we do that, we introduce elements of Implicational meaning related to themes of 'allowing' and 'letting be' into Implicational working memory, where they can be integrated with and transform the Implicational meanings related to wanting to be rid of the unpleasant thoughts, feelings and body sensations, and the person who caused us to experience them. In that way, we change the conditions that support the continuation of the patterns of processing that perpetuate *dukkha* from one moment to the next. Deprived of that support, these patterns dissolve and we are freed from suffering.

In such ways, by integrating Implicational patterns embodying the motivations to approach, rather than avoid, and to allow, rather than get rid of,

the wisdom of mindfulness can transform the conditions in which difficult experiences are processed. We can understand the process through which we weave transformative qualities such as patience, trust, non-striving, acceptance and letting go (Kabat-Zinn 1990, 33–5) into mindfulness practice in similar terms.

As these processes are so central to the effectiveness of mindfulness, and distinguish mindfulness from simply paying attention to experience, it will be helpful to look at them more closely.

'Implicational' versus 'propositional' change

Implicational thematic elements are, effectively, distillations of the essence of repeated *experiences* involving approach, allowing, goodwill and so forth, rather than a summary of factual knowledge *about* them. When these elements are incorporated into processing they bring with them an experiential 'flavour' or 'quality' that echoes the 'feel' of the original experiences, just as the four lines of the poem 'La Belle Dame Sans Merci' conveyed something of the 'feel' of melancholy and abandonment. In this way, with ongoing cultivation, mindful awareness can become imbued with a conscious sense of curiosity, interest, kindness, letting go, etc.

In this 'Implicational' approach, our subjective sense can gently guide the process of integrating these thematic elements; we, as it were, 'feel' our way into incorporating the 'spirit' of curiosity, letting be, and the like, as best we can. This 'Implicational' approach is very different from a more goal-focused 'Propositional' approach. This latter might involve, for example, setting conceptually specified targets, such as 'be a kind person,' to be achieved through a list of conceptually described instructions (a 'to-do list'): 'feel kind'; 'act generously'; 'be loving', 'model empathy and compassion,' and so forth. As well as leaving us wondering how exactly we might do this, and engendering a general sense of 'fixing' and 'busyness,' this approach runs the danger of generating yet more suffering; in the discussion of the Second Noble Truth in Paper I, we saw that attachment to a goal such as 'being a self who is kind (curious, accepting, etc.)' is actually the very condition that fuels *dukkha*.

We can illustrate this important distinction between an 'Implicational' approach and a 'Propositional' approach by the alternative ways we might respond to the statement that mindfulness involves 'paying attention non-judgmentally'. An Implicational approach would see this statement as an encouragement to embody the qualities, or spirit, of non-judgmentalness, acceptance, allowing and so on in the attention we bring to experience, to the extent that we can. A Propositional approach would see or use that same statement as an instruction to avoid making judgments. But, of course, we will inevitably find ourselves making judgments. In this situation, the Implicational approach is to receive 'this too' in a spirit of acceptance and allowing, perhaps including the judgments themselves in the scope of mindful awareness. By contrast, the Propositional approach sees the fact that we have made

judgments as a failure to achieve the specified goal of not making judgments. This view, of course, is only too likely to lead to more self-devaluative judgments, even as we give ourselves the further instruction not to judge the judging!

How?

How do we bring particular thematic elements into Implicational working memory? How do we incorporate the flavour of kindness and allowing, into mindful awareness? One way is to take advantage of the 'remembering', 'recollective', or 'bearing in mind' aspect of mindfulness, long recognized within the Buddhist tradition and re-emphasized by Georges Dreyfus (2011).

We can illustrate what we have in mind here by returning to the four lines of the poem. Reading the poem evokes a sense of melancholy and abandonment, which, we have suggested, reflects the processing of Implicational patterns related to those themes in Implicational working memory. That sense of melancholy and abandonment soon fades once we stop reading the poem, and are no longer actively processing these Implicational patterns. If, at this point, we were to bring the words 'melancholy and abandonment,' or an image from the poem, to mind, then there is every chance, if we have not left it too long since reading the poem, that we will experience the sense of melancholy again, and to an extent far greater than if we had not read the poem.

We can understand this re-evocation of feeling from the present perspective as follows. Having been processed only recently in Implicational working memory, patterns of Implicational information related to themes of melancholy and abandonment are still relatively 'fresh' and accessible in longer term Implicational memory. They can be brought back from there to Implicational working memory by relevant cues. Processed once more in working memory, these patterns will re-create the sense of melancholy and abandonment, and 'reset the clock' by refreshing the representations of them in longer term memory. By repeating this process over and over again, in other words 'bearing in mind' the sense of melancholy and related cues, it would be possible to keep related patterns of Implicational meaning present and active in working memory. There, they would be accessible for possible integration with information arising from unfolding experience. The process is analogous to the way we can keep a number 'in mind' by repeating it to ourselves over and over again, so keeping it 'fresh' in short-term memory. The process in Implicational working memory is, of course, at a much richer and more complex level of information.

Of course, most of us would not choose to bear themes of melancholy and abandonment in mind, but if the themes related to kindness, curiosity, allowing, and letting go, we can see how useful this might be in the transformation (or even prevention) of any suffering that might arise.

A second way we can keep information related to helpful themes 'alive' in Implicational working memory, is, of course, by actions arising from related motivations. Every time we intentionally act on any naturally arising sense of

kindness, or compassion, or generosity, then we extend the time over which thematically related information is present in Implicational working memory. We also, of course, lay down related information in longer term Implicational memory, increasing the chance that such themes will be 'retrieved' later. These are some of the reasons why the Noble Eightfold Path attaches such great importance to wholesome, ethical behaviour and intention, alongside its emphasis on meditation and understanding.

A third way we can introduce particular thematic content into Implicational working memory is indirectly, through the contemplation of related Propositional content. However, as this approach is generally more relevant to the third strategy for transforming suffering that we identified—changing our view of experience—we will return to it when we discuss that topic.

The relevance of these strategies for keeping thematic content alive in working memory goes beyond responding mindfully to particular experiences of suffering. It extends to the more enduring and pervasive effects of mindfulness, to which we now turn.

Mindfulness as a way of being

From what we have said so far, we can understand some of the ways in which intentionally responding mindfully to unpleasant and unwanted experiences, as and when they arise, can reduce suffering. We now consider how mindfulness practice can reduce suffering more generally.

Allen et al. (2009) subtitled their paper on the effects of MBCT with a quotation from one of the patients they studied: 'It changed me in just about every way possible.' Such a comment suggests that this patient learned far more than how to use mindfulness to cope better with particular experiences of unpleasant thoughts and feelings. It is not uncommon for participants in mindfulness-based programmes to report something akin to the opening of a door onto a whole new way of being—a sense of realising a potential for a radically different way of living life which had always been available, but, somehow, had never really been accessed before. In the same way, one of the most intriguing observations in MBSR and MBCT is that patients often report a reduction in upset and rumination following an event such as a difficult phone call, even when they have made no deliberate attempt to respond differently; the quality of their report is more 'this just happened' rather than 'I did this.'

How are we to understand what is going on in such situations? First, of course, we should remember that mindfulness practice is not focused specifically on unpleasant experiences; students of insight meditation, and participants in mindfulness-based applications, are encouraged to be mindful of all experience, the good, the bad, and the indifferent, as much of the time as possible. But the effects we have described seem to go further than simply the sum of many individual 'mindful responses' repeated over time. Rather, they seem more consistent with the cumulative effects of sustained mindfulness producing

more lasting changes in the overall 'shape' of the heart and mind. In other words, it is as if mindfulness practice eventually 'tips' the prevailing configuration of mental processes, or what we might call the mode of mind, from a mode which has the potential to create suffering to a mode which has the potential to heal suffering. That new mode of mind, with its different pattern of 'how' experience is processed, then persists for some time until, as a result of some further change in conditions, the mind and heart is 'tipped' back into its more habitual mode.

We have proposed that mindfulness is particularly associated with processing configurations in which Implicational working memory plays a central role. This proposal suggests the hypothesis that the changes in mode of mind we have just described involve a shift from an habitual mode, in which Propositional working memory and conceptual thought have a dominant influence, (a mode which has been called 'doing') to an alternative mode, in which Implicational working memory and experiential knowing have a dominant influence (a mode which has been called 'being' [Kabat-Zinn 1990; Segal, Williams, and Teasdale 2002; Williams et al. 2007]). This shift would explain: (1) the widely generalized effects of sustained mindfulness practice; (2) the way they are experienced as a new way of being; and (3) experiences in which previously upsetting experiences lose their power to evoke distress without the need for any intentional mindful 'coping response'.

The shift in prevailing mode of mind will not be stable, especially in the early stages of mindfulness practice; it will need continuing gentle maintenance to support it from 'tipping' back into the deeply engrained configurations that habitually maintain *dukkha*. How is this to be achieved?

The 'bearing in mind' aspect of Implicational working memory, which we considered earlier, offers a number of ways to support the alternative mode of mind. It provides a way to embody themes such as approach and allowing, which nurture a mode of Implicationally influenced 'being' rather Propositionally influenced 'doing.' It also, crucially, offers a way to keep alive the intention and motivation to be mindful, itself. But we need to be very sensitive to exactly how we 'bear in mind' that intention. Keeping alive the memory of a Propositional instruction such as 'be mindful' can be useful, but it runs the risk of becoming a nagging voice sitting on our shoulder and 'checking up' on how well we are doing in that respect from moment to moment. That, of course, would be quite counterproductive. The 'Implicational alternative' of keeping alive patterns of Implicational meaning related to the 'spirit' of curiosity, interest, and investigation, from which an unforced mindful awareness may arise more naturally, is likely to be more productive.

We can understand the effectiveness of certain formal practices in which 'choiceless' mindful awareness is sustained over extended periods in terms of such an Implicational approach. Martine Batchelor (2011) describes how bearing in mind a silent question such as 'what is this?' can keep the whole mindful mode alive: 'When meditating, I would repeatedly ask the question: "What is this?" silently inside myself. I did not do this in order to arrive at an answer but rather to develop

a sensation of questioning and then intensify that sensation'. This description bears a striking resemblance to the 'prescription' for maintaining information related to helpful themes in Implicational working memory we described earlier. The question is clearly intended Implicationally, rather than Propositionally (it does not expect a conceptual answer); and it stresses the importance of connecting with the felt 'sense' of the question (which, from the ICS perspective, is the conscious correlate of the processing of themes of curiosity, interest, and investigation in Implicational working memory). In this way the question and the evoked sense can be used to maintain the processing of themes that will support continuing mindful awareness in Implicational working memory. This whole process then 'holds' the mind in a configuration in which Implicational, rather than Propositional, working memory has the prevailing role.

Mindfulness offers the possibility of more skilful modes of mind, or ways of being, in which we can, if we remember, dwell for periods of time. In these states, we experience less suffering and greater ease and peace, and, for that reason, they are of great value in and of themselves. However, they do not bring a lasting end to *dukkha*: like all other states of mind, they are temporary, and when we forget to deliberately practice or nurture them, we are likely to 'tip' back into configurations of conditions that create suffering. For this reason, within the Buddhist tradition, mindfulness is seen, ultimately, as a means, rather than as an end in itself: it offers a path to the development of *insight*, or change of view, the third strategy for change we have identified. Insight offers us the possibility both of reducing our burden of everyday unsatisfactoriness and also of eliminating *dukkha* completely, for good.

Strategy three: Changing the view

Although we have distinguished three strategies through which mindfulness transforms suffering, it is important to remember that they are inherently inter-related. As we look more closely at this third strategy through the ICS perspective we have outlined, we will see that many situations could be described equally well in terms of changes in view of experience, changes in processing of experience, or changes in relationship to experience.

We make sense of individual experiences within wider views of how things are. These views, schemas, or schematic mental models shape and form the way we see experience, somewhat like a lens. These effects can occur at all levels. At the most basic level, seeing experience in terms of what is internal ('me') and what is external ('the world'), for example, is a function of a very general purpose lens through which we habitually look at all experience. The same could be said of seeing experience in terms of 'subject' and 'object'.

The ignorance that we discussed in Paper I as the foundation of all *dukkha*, involves looking through a lens which: (1) sees experience in terms of independently existing, enduring objects and selfs, rather than in terms of dynamically unfolding processes; and (2) leads us to identify personally with

experiences as 'me' or 'mine', when in fact they are impersonal phenomena that arise as a function of certain conditions.

In principle, we can transform suffering either by changing the way we apply existing lenses, or by creating new lenses. We can illustrate the first of these strategies by the effects of mindfulness known as 'decentring' (Teasdale, Segal and Williams 1995; Segal, Williams and Teasdale 2002) or 'reperception' (Shapiro et al. 2006).

Decentring and reperception involve a radical shift in the way we use the very basic lens through which we see experience in terms of 'subject' and 'object' so that what we have habitually taken as subject is now taken as object. In mindfulness we attend *to* feelings, thoughts and sensations as mental events in the field of awareness, rather than *from* them as aspects of our sense of subjective self. In the case of the phone call, for example, this would involve making the upset feelings or thoughts the focus of attention as events in the mind, rather than *being* them as 'me' (cf. Kabat-Zinn 1990, 69–70). It has been suggested that this fundamental re-orientation is an important mechanism through which mindfulness can reduce suffering. Half the participants in the study of Allen et al. (2009) reported that MBCT led to 'a new perspective on their depression-related thoughts and feelings that can be summarized as "These thoughts and feelings aren't me."'

In ICS, the lenses through which we look at (and so create) experience are viewed as schematic mental models (Teasdale and Barnard 1993), prototypical patterns of Implicational information that reflect recurring aspects of the 'deep structure' of experience. This perspective suggests that if we wish to change our view of experience by intentionally replacing one lens with another from our 'stock' of existing lenses, or if we wish to create new lenses that remove or attenuate our distorted perceptions, then Implicational working memory is the place where this must happen. This workspace allows us to access existing schematic mental models stored in long term Implicational memory, to integrate and recombine elements of existing Implicational models into new patterns, and to extract new models on the basis of fresh Implicational 'raw data' derived from looking afresh, with clear vision, at more basic aspects of experience.

Given our earlier suggestion that it is the working memory for Implicational information that is particularly associated with mindfulness, the perspective we have just outlined suggests that mindfulness creates optimal conditions for the strategy of intentionally changing view as a way to transform suffering. Mindfulness allows access to the Implicational workspace so enabling us to know the lens through which we are viewing the world, to change that lens, and to create new lenses. We can illustrate these points by revisiting an example we have already considered.

Wakefulness and the Second Noble Truth

In Paper I (page 95) we recounted an anecdote of waking, preoccupied with thinking about the idea that suffering arises from our relationship to experience, rather than from experience itself. Even though the mind was full of thoughts about that idea, this thinking had no effect in reducing the irritation at being awake in the early hours of the morning. From the ICS perspective, this is exactly what we would expect: the subjective experience of 'thinking about' indicated that Propositional working memory, specialized for processing conceptual information, was dominant. Even though this 'thinking about' might produce further ideas about the Second Noble Truth, these, in themselves, would not be liberating, simply because the conceptual level of information is not directly linked to suffering or the transformation of suffering.

On the other hand, contemplation of the Second Noble Truth would have created elements of Implicational information related to the theme that suffering reflects our relationship to experience. But, so long as 'thinking,' with its primary involvement of Propositional working memory, precluded much involvement of Implicational working memory,¹ these patterns of Implicational information *could not be integrated* with other Implicational information, directly linked to suffering, in ways that could transform that suffering. On the other hand, as soon as the focus shifted away from *thinking* about suffering and wakefulness to *mindful investigation* of the actual *experience* of irritation and aversion in the moment, then primary influence swung to Implicational working memory. There, the patterns of Implicational information related to the themes of the Second Noble Truth could be integrated with the patterns related to irritation and aversion to yield the intuitive insight 'this aversion, right now, is what is causing suffering.' And that clear seeing, rather than any attempt to follow a Propositional instruction to 'do' letting go, led very naturally to a release of the attachment to the need to get rid of the experience of wakefulness.

Once the mind sees clearly that it is creating suffering, its inherent wisdom lets go of the processing that creates it, just as we let go of a very hot object as soon as we register the pain it is causing. The new view, or 'lens', that embodies this insight, having once been created and used, could be stored as a new schematic mental model in long term Implicational memory, ready to be accessed when a thematically similar situation arose in the future. In this way, the basis of a more enduring transformation of suffering is established. That is, the next time we are awake in the middle of the night, we will be more likely to 'see' our irritation and attempts to 'fix' our wakefulness as 'aversion' or 'suffering' and we will release ourselves sooner, and, perhaps, eventually, this reaction may not even arise.

'Top down' and 'Bottom up'

The example we just considered involved the development of insight through the integration within Implicational working memory of elements derived

'top down' from contemplation of the Second Noble Truth with elements derived 'bottom up' from the mindful investigation of the experience of the sense of irritation and aversion in the moment. The same combined 'Top down and Bottom up' strategy for the development of insight is evident in the Buddha's own instructions for the practice of mindfulness in the *Satipaṭṭhāna Sutta*.

The practices of mindfulness outlined in that discourse describe a method in which, through mindfulness, new fundamental schematic mental models of experience can be constructed afresh on the basis of direct experiential data, integrated with orienting instructions. We are encouraged to contemplate the body *as* body, feelings *as* feelings, and mind *as* mind, so that we create models in which we see these experiences for what they are—experiences—rather than as aspects of an independently existing self—'me' or 'mine.' We are instructed to see the arising and passing away of all experiences, and the conditions that relate to those arisings and passings away, so that we create models that embody the theme of transience in relation to shifting conditions, rather than that of continuity of independently existing entities. And we are instructed to contemplate 'internally and externally,' that is, the way in which all aspects of what we experience are also experienced by others, so that we create models of the universal, rather than personal, nature of experience.

The mindful mode of mind, which makes available the workspace of Implicational working memory in which these new models can be created, supports this process. It allows us, ultimately, to create new basic models which see all experience as process, dependent on conditions, rather than as reflections of enduring objects and selfs with stable properties. These new models release the grip of the long-established models embodying ignorance that underpin the configurations that create and sustain suffering. We see the world afresh as if we have awakened from a dream. We are free.

Conclusions and implications

As we conclude by considering some of the implications of our analysis, it is helpful to remember that the ideas we have presented are just that—ideas—hypotheses that can be tested, but that, as yet, await the support of specific empirical data. It follows that any implications we derive from these ideas must also be treated carefully, as possibilities to be investigated further, rather than as statements of established truth.

We have considered three aspects of the way in which mindfulness can transform suffering: changing *what* the mind is processing, changing *how* the mind is processing it, and changing the *view* of what is being processed. We have suggested that whereas the first of these routes to change, based on learning how to intentionally switch the focus of attention, is relatively straightforward, the second and third routes are more subtle. Within the analysis we have presented, this is because these latter routes involve the transformation of implicit holistic (Implicational) meanings.

These distinctions have a number of implications. First, they clarify the ways in which mindfulness involves more than simply learning how to pay attention, intentionally, in the moment. Although we might describe the first route to change in this way, this description cannot do justice to the second and third routes. Within our analysis, the effects of mindfulness through these routes necessarily involves the integration of skilful views, attitudes, and intentions into awareness as a crucial aspect of transformation.

There are also implications for the teaching of mindfulness and the training and selection of instructors. Although teaching skills of attention control may not require extensive training of instructors, the same is not true of teaching mindfulness in a way that capitalizes on the second and third routes to change. In distinguishing 'Propositional change' and 'Implicational change' we suggested that Implicational change involved the integration of the 'spirit' of non-judgmentalness, allowing, affectionate curiosity, kindness, compassion, and the like, rather than compliance with a sequence of conceptual 'do this, do that' instructions. Embodiment of these qualities in the instructor will be one of the most potent vehicles for communicating the 'felt sense' of these qualities to the participants in mindfulness-based interventions. Equally, changing deeply ingrained implicit 'views' or 'schematic models' in participants will be powerfully influenced by the embodied wisdom of the instructor. These are reasons for selecting and training instructors in terms of the qualities of their being and understanding.

Further, an understanding of the relationship between Propositional and Implicational meanings could provide mindfulness instructors with a clearer rationale for the way in which they might gently guide participants' attention—both during formal practices and, perhaps more potently, in the 'enquiry' sessions that usually follow such practices. Consciously using language and conceptual meaning to alert participants to Implicational themes could aid participants: (1) by making helpful themes that arise more explicit in the moment; and (2) by refreshing participants' experience of these from time to time—returning to them later in the session, perhaps, and thus helping participants to keep them alive in Implicational working memory.

The relative importance of the three routes to change is likely to differ in relation to different aspirations. The Buddhist tradition integrates all three routes in its use of mindfulness within the Noble Eightfold Path. This seems necessary when the aim of practice, as in this Path, is the lofty goal of complete and lasting freedom from *dukkha*. It also seems likely that all three routes contribute when patients report discovering a new way of being, or recurrently depressed patients report fundamental shifts in their view of and relationship to depression.

On the other hand, there may be other problem areas where the first route, alone, may be sufficient. For example, this may be enough to give clients and patients the skills to break into relatively circumscribed self-perpetuating mental patterns, such as where thoughts, feelings and body sensations feed off each other in closed loops.

If we can identify the routes to change which are most relevant to particular problems, we may find, for example, problems that would benefit from attention training alone, where relatively simple interventions could be offered. Scarce, highly trained, instructors could then focus on clients and patients who require a more comprehensive approach, transforming suffering through all the routes we have described.

Finally, our distinction between Propositional and Implicational change, and the hypothesis that Implicational change is the more important, reinforces the message of traditional Buddhist teachings: the transformation of suffering arises as a result of changing the conditions that create and support it, rather than 'fixing' 'forcing' or 'making' something happen by an effort of will.

NOTE

1. In the ICS framework only one kind of working memory can be 'dominant' at any one time.

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